

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Cancelled)

2. (Currently Amended) ~~The~~A transmission device ~~of claim 1,~~comprising:

a non-linear distortion compensating section for compensating non-linear distortion of an orthogonal base-band signal that is digitally modulated to form a distortion compensated signal by using non-linear distortion compensating data;

a first orthogonal modulator for orthogonally modulating the distortion compensated signal received from the non-linear distortion compensating section;

a modulation signal distributor for distributing a feedback signal formed by amplifying the distortion compensated signal orthogonally modulated by the first orthogonal modulator;

a phase/amplitude control section for controlling a phase and an amplitude of at least one of 1) the feedback signal distributed by the modulation signal distributor and 2) a reference signal based on the input orthogonal base-band signal;

a signal combiner for generating a combinatory signal based on the feedback signal and the reference signal, at least one of the feedback signal and the reference signal that are provided to the signal combiner being phase and amplitude controlled by the phase/amplitude control section; and

an updating section for updating the non-linear distortion compensating data based on the input orthogonal base-band signal and the combinatory signal provided

by the signal combiner, the combinatory signal being analog-digital converted prior to being received by the updating section.

wherein the phase/amplitude control section controls the phase and the amplitude of the feedback signal, and the reference signal is generated by a second orthogonal modulator by orthogonally modulating the input orthogonal base-band signal,

wherein the updating section updates the non-linear distortion compensating data by using the input orthogonal base-band signal and a demodulated signal obtained by an orthogonal demodulator which one of 1) orthogonally demodulates the analog-digital converted combinatory signal and 2) provides the combinatory signal with analog-digital conversion and orthogonally demodulates the combinatory signal.

3. (Previously Presented) The transmission device of claim 2, wherein at least one of the feedback signal supplied to the phase/amplitude control section from the modulation signal distributor and the reference signal supplied to the signal combiner from the second orthogonal modulator is provided with a frequency conversion.

4. (Original) The transmission device of claim 3 further comprising a reference table for storing the non-linear distortion compensating data.

5. (Previously Presented) The transmission device of claim 3, wherein the updating section includes a compensation coefficient calculator for calculating the non-linear distortion compensating data with a computing equation and a computing coefficient updating section for updating a coefficient of the computing equation.

6. (Original) The transmission device of claim 2 further comprising a reference table for storing the non-linear distortion compensating data.

7. (Previously Presented) The transmission device of claim 2, wherein the updating section includes a compensation coefficient calculator for calculating the non-

linear distortion compensating data with a computing equation and a computing coefficient updating section for updating a coefficient of the computing equation.

8. (Currently Amended) ~~The~~A transmission device ~~of claim 1,~~comprising:

a non-linear distortion compensating section for compensating non-linear distortion of an orthogonal base-band signal that is digitally modulated to form a distortion compensated signal by using non-linear distortion compensating data;

a first orthogonal modulator for orthogonally modulating the distortion compensated signal received from the non-linear distortion compensating section;

a modulation signal distributor for distributing a feedback signal formed by amplifying the distortion compensated signal orthogonally modulated by the first orthogonal modulator;

a phase/amplitude control section for controlling a phase and an amplitude of at least one of 1) the feedback signal distributed by the modulation signal distributor and 2) a reference signal based on the input orthogonal base-band signal;

a signal combiner for generating a combinatory signal based on the feedback signal and the reference signal, at least one of the feedback signal and the reference signal that are provided to the signal combiner being phase and amplitude controlled by the phase/amplitude control section; and

an updating section for updating the non-linear distortion compensating data based on the input orthogonal base-band signal and the combinatory signal provided by the signal combiner, the combinatory signal being analog-digital converted prior to being received by the updating section,

wherein the reference signal is generated by a second orthogonal modulator by input orthogonally modulating the ~~input~~ orthogonal base-band signal,

wherein the phase/amplitude control section controls the phase and the amplitude of the reference signal provided from the second orthogonal modulator;

wherein the updating section updates the non-linear distortion compensating data by using the input orthogonal base-band signal and a demodulated signal obtained by an orthogonal demodulator which one of 1) orthogonally demodulates the analog-digital converted combinatory signal and 2) provides the combinatory signal with analog-digital conversion and orthogonally demodulates the combinatory signal.

9. (Previously Presented) The transmission device of claim 8, wherein at least one of the feedback signal supplied to the phase/amplitude control section from the modulation signal distributor, a phase and amplitude controlled signal supplied from the phase/amplitude control section to the signal combiner, and the reference signal supplied from the second orthogonal modulator to the signal combiner is provided with a frequency conversion.

10. (Original) The transmission device of claim 9 further comprising a reference table for storing the non-linear distortion compensating data.

11. (Previously Presented) The transmission device of claim 9, wherein the updating section includes a compensation coefficient calculator for calculating the non-linear distortion compensating data with a computing equation and a computing coefficient updating section for updating a coefficient of the computing equation.

12. (Original) The transmission device of claim 8 further comprising a reference table for storing the non-linear distortion compensating data.

13. (Previously Presented) The transmission device of claim 8, wherein the updating section includes a compensation coefficient calculator for calculating the non-linear distortion compensating data with a computing equation and a computing coefficient updating section for updating a coefficient of the computing equation.

14. (Currently Amended) ~~The~~ transmission device of ~~claim 1~~ further comprising:

a non-linear distortion compensating section for compensating non-linear distortion of an orthogonal base-band signal that is digitally modulated to form a distortion compensated signal by using non-linear distortion compensating data;

a first orthogonal modulator for orthogonally modulating the distortion compensated signal received from the non-linear distortion compensating section;

a modulation signal distributor for distributing a feedback signal formed by amplifying the distortion compensated signal orthogonally modulated by the first orthogonal modulator;

a phase/amplitude control section for controlling a phase and an amplitude of at least one of 1) the feedback signal distributed by the modulation signal distributor and 2) a reference signal based on the input orthogonal base-band signal;

a signal combiner for generating a combinatory signal based on the feedback signal and the reference signal, at least one of the feedback signal and the reference signal that are provided to the signal combiner being phase and amplitude controlled by the phase/amplitude control section; and

an updating section for updating the non-linear distortion compensating data based on the input orthogonal base-band signal and the combinatory signal provided by the signal combiner, the combinatory signal being analog-digital converted prior to being received by the updating section;

an orthogonal demodulator for one of 1) orthogonally demodulating the analog-digital converted combinatory signal and 2) providing the combinatory signal with analog-digital conversion and orthogonally demodulating the combinatory signal; and

an adding circuit for adding the input orthogonal base-band signal and the demodulated signal supplied from the orthogonal demodulator,

wherein the updating section updates the non-linear distortion compensating data by using an output from the adding circuit and the ~~input~~ orthogonal base-band signal.

15. (Previously Presented) The transmission device of claim 14, wherein an amplitude of the input orthogonal base-band signal being added to the adding circuit is controlled.

16. (Currently Amended) ~~The~~A transmission device ~~of claim 1,~~comprising:

a non-linear distortion compensating section for compensating non-linear distortion of an orthogonal base-band signal that is digitally modulated to form a distortion compensated signal by using non-linear distortion compensating data;

a first orthogonal modulator for orthogonally modulating the distortion compensated signal received from the non-linear distortion compensating section;

a modulation signal distributor for distributing a feedback signal formed by amplifying the distortion compensated signal orthogonally modulated by the first orthogonal modulator;

a phase/amplitude control section for controlling a phase and an amplitude of at least one of 1) the feedback signal distributed by the modulation signal distributor and 2) a reference signal based on the input orthogonal base-band signal;

a signal combiner for generating a combinatory signal based on the feedback signal and the reference signal, at least one of the feedback signal and the reference signal that are provided to the signal combiner being phase and amplitude controlled by the phase/amplitude control section; and

an updating section for updating the non-linear distortion compensating data based on the input orthogonal base-band signal and the combinatory signal provided by the signal combiner, the combinatory signal being analog-digital converted prior to being received by the updating section.

wherein the feedback signal is orthogonally demodulated and the signal combiner combines the orthogonally demodulated feedback signal and the reference signal into the combinatory signal.

17. (Currently Amended) The transmission device of claim ~~[[1]]~~2, further comprising a reference table for storing the non-linear distortion compensating data,

wherein the updating section includes a reference table updating section for updating the reference table.

18. (New) The transmission device of claim 8, further comprising a reference table for storing the non-linear distortion compensating data, wherein the updating section includes a reference table updating section for updating the reference table.

19. (New) The transmission device of claim 14, further comprising a reference table for storing the non-linear distortion compensating data, wherein the updating section includes a reference table updating section for updating the reference table.

20. (New) The transmission device of claim 16, further comprising a reference table for storing the non-linear distortion compensating data, wherein the updating section includes a reference table updating section for updating the reference table.